

On the first day, January 29, thunder was heard from southward at intervals during the morning, and at 9^h 30^m a solar halo was seen. The sky became quite covered with heavy nimbus clouds soon after 13^h, and at 14^h 35^m rain commenced to fall, lasting till 15^h 5^m, accompanied by occasional loud peals of thunder. The storm traveled from south to north-northeast passing slightly to the east of the observatory. The temperature began to fall before the sky was completely covered, and continued to do so until 14^h 30^m; at 13^h 50^m the wind veered from north to south, and was from southeast by south during the rain which fell from 14^h 30^m to 15^h 5^m.

On the second day the sky became covered with heavy nimbus clouds at 12^h 0^m, and very heavy rain fell from 12^h 50^m to 13^h 10^m. On this occasion the storm traveled from south-southwest to north-northeast, passing very nearly over the observatory; at the same time a second storm burst over the Ponce, a mountain 7 miles south by west of the observatory.

The fall of temperature during this storm was the greatest on record, viz, from 93.5° at 11^h 25^m to 72.0° at 12^h 58^m. Here also the fall commenced some minutes before the sky became covered.

The sunshine strip shows a continuous burned line up to 11^h 53^m, and a small spot at 12^h 0^m.

Between 11^h 25^m and 11^h 35^m, the wind veered from north-northeast to south, and was from the latter direction during the heavy rain which followed.

The registers are brought to the notice of meteorologists, with a view to obtaining further information on the effect of thunderstorms, and any such information will be much appreciated.

RECENT PAPERS BEARING ON METEOROLOGY.

W. F. R. PHILLIPS, in charge of Library, etc.

The subjoined list of titles has been selected from the contents of the periodicals and serials recently received in the library of the Weather Bureau. The titles selected are of papers or other communications bearing on meteorology or cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled; it shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau:

Journal de Physique. Paris. 3me série. Tome 9.

Brillouin, Marcel. Origine, variation et perturbations de l'électricité atmosphérique. P. 91.

Teisserenc de Bort. Étude de l'atmosphère dans la verticale par cerfs-volants et ballons-sondes. P. 129.

Scientific American. New York. Vol. 82.

Crafts, H. A. Snowfall and Water Supply of the Rocky Mountains. P. 133.

Annalen der Physik. Leipzig. Vierte Folge. Band 1.

Schwalbe, G. Über die experimentelle Grundlage der Exner'schen theorie der Luftperturbationen. P. 294.

Zeitschrift für Luftschiffahrt u. Physik der Atmosphäre. Berlin. 19 Jahrg.

Jacob, E. Forsetzung der Betrachtungen über eine kinetische Theorie der Luftbewegungen. P. 5.

Nimfuhr, R. Flugtechnische Betrachtungen (Schluss). P. 14.

Nature. London. Vol. 61.

Dexter, E. G. Drunkenness and the Weather. P. 365.

Marconi, G. Wireless Telegraphy. P. 377.

Wood, R. W. Effects of Lightning on Electric Lamps. P. 391.

Halm, J. Relation between the Periodic Changes of Solar Activity and the Earth's Motion. P. 445.

P., W. E. Applied Meteorology. P. 448.

La Nature. Paris. 28me Année.

Jaubert, J. L'Orage du 13 Février 1900. P. 210.

Naturwissenschaftliche Rundschau. Braunschweig. 15 Jahrg.

Fassig, O. L. Typen des März-Wetters in den Vereinigten Staaten. (Abstract American Journal Science). P. 94.

Das Wetter. Berlin. 17 Jahrg.

Kasner C. Der Mistral. P. 25.

Meinardus, W. Ueber der Methoden der Maritimen Klimatologie. P. 28.

Bornstein, R. Eine Verbesserung des telegraphischen Witterungsdienstes. P. 36.

Ciel et Terre. Bruxelles. 20me Année.

Vander Linden, E. Prévision du temps pour une période de plusieurs jours. P. 589.

Proceedings of the Royal Society. London. Vol. 66.

Sworn, S. A. Researches in Absolute Mercurial Thermometry. P. 86.

Gaea. Leipzig. 36 Jahrg.

Trabert, W. Die Bildung des Hagels. (Schluss). P. 207.

Symons's Meteorological Magazine. London. Vol. 35.

— The Snow and Floods of February, 1900 [England]. P. 18.

Meteorologische Zeitschrift. Wien. Band 17.

Less, E. Ueber den täglichen Gang der Sommerregen bei verschiedenen Wetterlagen. P. 49.

Bergholz, P. Ueber Bildungsstätten, Bahnen und Zonen der Orkane des Fernen Ostens. P. 71.

Woeikof, A. Arktis und Antarktis. P. 75.

Woeikof, A. Al. v. Tillo. P. 79.

Hann, J. Klima von Ponta Delgada. P. 80.

Hann, J. Ueber eine als möglich gedachte Ursache der Wirksamkeit des Hagelschliessens. P. 83.

Hann, J. Klimatabelle für Auckland (Neuseeland, Nordinsel). P. 84.

— Einfluss der Grossen Seen auf den Niederschlag. P. 87.

— Kohlensäuregehalt der Luft auf dem Montblanc. P. 87

— Neue tägliche Wetterkarten. P. 88.

— Das Vorkommen von Jod in der Atmosphäre. P. 88.

MEXICAN CLIMATOLOGICAL DATA.

Through the kind cooperation of Señor Manuel E. Pastrana, Director of the Central Meteorologico-Magnetic Observatory, the monthly summaries of Mexican data are now communicated in manuscript, in advance of their publication in the Boletín Mensual. An abstract, translated into English measures, is here given, in continuation of the similar tables published in the MONTHLY WEATHER REVIEW since 1896. The barometric means have not been reduced to standard gravity, but this correction will be given at some future date when the pressures are published on our Chart IV.

Mexican data for February, 1900.

Stations.	Altitude.	Mean barometer.	Temperature.			Relative humidity.	Precipitation.	Prevailing direction.	
			Max.	Min.	Mean.			Wind.	Cloud.
Colima.....	Feet. 1,656	Inch.	° F. 86.4	° F. 59.2	° F.	%	Inch.		
Culiacán Rosales (E. d. S.).....	112	29.76	86.0	56.1	71.4	64	3.22	w.	.....
Durango (Seminario).....	6,243	24.00	77.0	28.4	54.5	47	0.94	sw.	sw.
Leon (Guanaajuato).....	5,934	24.28	79.0	36.1	59.4	44	0.04	sw.	sw.
Mazatlan.....	25	29.96	95.4	52.0	75.7	65	0.79	se.	e.
Mexico (Obs. Cent.).....	7,472	23.03	79.0	35.6	59.0	49	T.	s.	w.
Morelia (Seminario).....	6,401	23.96	76.8	39.9	59.7	54	.....	sw.	sw.
Puebla (Col. Cat.).....	7,112	23.36	75.4	39.2	61.5	60	T.	ene., e.	s.
Saltito (Col. S. Juan).....	5,399	24.74	76.3	25.2	53.3	58	0.98	s.	sw.
San Isidro (Hac. de Guanaajuato).....	.....	.....	69.4	56.8	.....	.....	T.	w.	.....
Siñao.....	6,068	24.26	74.5	44.2	61.5	47	0.23	w.	w.
Zapotlan.....	5,078	25.09	82.0	44.6	62.8	50	0.08	sw.	w.

EARTHQUAKES AT CARSON CITY, NEV.

By Prof. CHARLES W. FRIEND.

According to a letter recently received from Prof. Charles W. Friend, the geographical position of his private observatory at Carson City, Nev., is latitude N. 39° 9' 47.2", and longitude W. 119° 45' 42.9". The altitude above sea level is 4,660 feet. The observatory is well furnished with a 5-inch refractor by Clark, a 3-inch transit by Troughton and Simms, a chronograph by Fauth, sidereal clock, chronometers, sextants, and astro-photographic apparatus.

The seismograph is a duplex pendulum pattern from designs by Prof. J. A. Ewing. Meteorological records have been kept tidraily at 7 a. m., 2 p. m., and 9 p. m., Pacific standard time, since 1880. In the following list of earthquakes the scale of terms used in the 6th column is that known as the Rossi-Forel scale, which reads as follows:

THE ROSSI-FOREL SCALE.

I.—Microseismic shock, recorded by a single seismograph, or by seismographs of the same model, but not putting seismographs of different patterns in motion. Reported by experienced observers only.

II.—Shocks recorded by several seismographs of different patterns. Reported by a small number of persons who are at rest.

III.—Shocks reported by persons at rest. Duration or direction noted.

IV.—Shocks reported by persons in motion. Shaking of movable objects, doors and windows, cracking of ceilings.

V.—Shock generally felt by every one; furniture shaken, some bells rung.

VI.—General awakening of sleepers; general ringing of bells; swinging of chandeliers; stopping of clocks; visible swaying of trees; some persons run out of buildings.

VII.—Overturning of loose objects; fall of plaster; striking of church bells; general fright; without damage to buildings.

VIII.—Fall of chimneys; cracks in walls of buildings.

IX.—Partial or total destruction of some buildings.

X.—Great disasters; overturning of rocks; fissures in the surface of the earth; mountain slides.

Earthquakes observed at Carson City, Nev.

Year.	Month and date.	Time, Pacific standard.	Motion.	Intensity, Rossi-Forel scale.	Remarks.
1875	Jan. 24	4.00 a.m.	ne. sw.	.....	One light and one sharp shock.
	Dec. 3	3.00 p.m.	.....	.....	Light.
1877	July 9	11.00 p.m.	n. s.	.....	Do.
1881	Oct. 21	6.41 p.m.	n. s.	.....	Two light shocks.
	Nov. 9	10.08 a.m.	n. s.	.....	Sharp shock, lasting 2 seconds.
1883	July 1	3.00 a.m.	.....	.....	Light.
	Aug. 19	2.55 a.m.	.....	.....	Three light shocks.
1884	April 11	2.10 p.m.	nw. se.	IV	Principally vertical.
1887	June 3	2.48 a.m.	sw. ne.	VIII	Very severe, lasting 6 to 70 seconds, rotary motion preceded by a noise like thunder; stone and brick walls cracked, plaster shaken down, etc.
	June 18	1.20 a.m.	.....	.....	Two light shocks.
1888	Jan. 29	10.45 p.m.	sw. ne.	III	Light.
	April 13	7.33 p.m.	sw. ne.	.....	Lasting 5 to 6 seconds.
	April 28	8.47 p.m.	s. n.	IV	Light, followed by quite heavy shock 20 seconds later.
	May 27	1.54 a.m.	s. n.	.....	Light.
1889	June 19	10.00 p.m.	s. n.	II	Light.
	Oct. 15	4.30 a.m.	e. w.	II	Do.
	Dec. 14	5.30 a.m.	e. w.	II	Do.
1890	April 24	D. N. ¹	.....	I	Light (from seismometer.)
1892	Feb. 23	D. N. ¹	.....	I	Do.
	Mar. 26	{Bet. 7 a.m. and 6 p.m.}	{e. w.}	.....	Light tremors all day.
	April 19	2.51 a.m.	e. w.	VI	Gentle, but large movement, stopped sidereal and meridian time clocks in observatory.
	April 21	9.44 a.m.	e. w.	VI	Light (from seismometer.)
	April 21	7.17 p.m.	e. w.	IV	Light.
	April 23	5.30 p.m.	sw. ne.	II	Do.
	April 29	4.08 p.m.	se. nw.	III	Do.
	May 28	D. N. ¹	.....	I	Do.
	July 6	7.00 a.m.	e. w.	II	Light.
	July 22	6.50 a.m.	se. nw.	II	Do.
1893	Mar. 2	12.05 a.m.	e. w.	II	Do.
	Mar. 2	6.40 a.m.	e. w.	II	Do.
	Mar. 30	D. N. ¹	ne. sw.	I	Tremor (from seismometer.)
	Dec. 11	3.10 p.m.	e. w.	I	Do.
1894	Nov. 10	6.55 p.m.	e. w.	II	Light.
	Nov. 15	11.07 p.m.	e. w.	I	Do.
	Nov. 15	11.25 p.m.	e. w.	II	Do.
	Nov. 15	12 midn't.	e. w.	II	Do.
	Nov. 18	2.38 a.m.	e. w.	I	Tremor (from seismometer.)
	Nov. 18	2.40 a.m.	e. w.	I	Do.
	Nov. 18	2.49 a.m.	e. w.	III	Sharp shock.
	Nov. 18	5.15 a.m.	e. w.	I	Tremor.
	Nov. 18	5.33 a.m.	e. w.	I	Do.
	Nov. 18	7.22 a.m.	e. w.	I	Do.
	Nov. 21	D. N. ¹	.....	I	Tremor (from seismometer.)
	Nov. 24	10.03 p.m.	sw. ne.	II	Light.
	Nov. 24	11.22 p.m.	sw. ne.	III	Sharp shock.
	Dec. 4	9.39 p.m.	.....	I	Tremor.
	Dec. 18	9.09 p.m.	sw. ne.	III	Sharp shock.
1896	Jan. 25	4.45 a.m.	e. w.	.....	Light.
	Jan. 25	4.46 a.m.	e. w.	.....	Do.
	Jan. 25	5.02 a.m.	e. w.	.....	Do.
	Jan. 27	7.59 a.m.	s. n.	II	Light, and a number of light tremors.
	Jan. 27	8.34 a.m.	w. e.	II	Do.
	Jan. 27	11.04 a.m.	sw. ne.	III	Do.
	Jan. 27	11.19 a.m.	sw. ne.	I	Do.
	Jan. 27	1.01 p.m.	sw. ne.	IV	Do.
	Jan. 27	6.32 p.m.	sw. ne.	II	Do.
	Mar. 19	4.01 a.m.	.....	.....	Light.
	Mar. 20	11.25 p.m.	.....	.....	Do.
1897	May 15	11.05 p.m.	sw. ne.	III	Light.
	May 21	1.50 p.m.	sw. ne.	III	Light.
	June 20	12.15 p.m.	sw. ne.	IV	stopped four clocks in United States Government building.
	July 5	6.52 p.m.	.....	.....	Tremor.
	July 11	12.15 a.m.	.....	.....	Do.
1898	Oct. 14	10.30 a.m.	sw. ne.	II	Light.
	Mar. 13	7.34 a.m.	sw. ne.	II	Light.
	Mar. 30	11.45 p.m.	sw. ne.	IV	Light.

¹ During night.

OBSERVATIONS AT HONOLULU.

Through the kind cooperation of Mr. Curtis J. Lyons, Meteorologist to the Government Survey, the monthly report of meteorological conditions at Honolulu is now made partly in accordance with the new form, No. 1040, and the arrangement of the columns, therefore, differs from those previously published.

Meteorological observations at Honolulu, February, 1900.

The station is at 21° 18' N., 157° 50' W. Pressure is corrected for temperature and reduced to sea level, and the gravity correction, -0.06, has been applied.

The average direction and force of the wind and the average cloudiness for the whole day are given unless they have varied more than usual, in which case the extremes are given. The scale of wind force is 0 to 12, or Beaufort scale. Two directions of wind, or values of wind force or amounts of cloudiness, connected by a dash, indicate change from one to the other.

The rainfall for twenty-four hours has always been measured at 10:29 p. m., not 1 p. m., Greenwich time, on the respective dates.

The rain gauge, 8 inches in diameter, is 1 foot above ground. Thermometer, 9 feet above ground. Ground is 43 feet, and the barometer 50 feet above sea level.

Date.	Pressure at sea level.	Temperature.		During twenty-four hours preceding 1 p. m., Greenwich time, or 2:29 a. m., Honolulu time.										Total rainfall at 9 a. m., local time.
				Temperature.		Means.		Wind.		Average cloudiness.	Sea-level pressures.			
		Dry bulb.	Wet bulb.	Maximum.	Minimum.	Dew-point.	Relative humidity.	Prevailing direction.	Force.		Maximum.	Minimum.		
1.....	30.03	68	63	74	64	60.7	69	ne.	5	3	30.09	29.98	0.11	
2.....	30.01	70	62	77	67	59.0	64	ne.	4	2	30.06	29.99	0.01	
3.....	29.94	62	60	78	68	58.3	60	ne.	4-2	1	30.06	29.97	0.00	
4.....	29.85	70	65	78	61	60.3	73	s-w.	1	0-2	29.98	29.85	0.15	
5.....	29.90	65	62	73	63	65.7	87	s-w.	2	10	29.89	29.80	0.53	
6.....	29.97	68	64	73	64	61.0	75	nne.	0-4	10	30.05	29.95	0.00	
7.....	29.94	70	64.5	73	65	62.0	78	nne.	5-1	8	30.03	29.92	0.07	
8.....	29.84	68	65.5	76	66	62.0	73	nne.	3	4-7	29.98	29.84	0.20	
9.....	29.82	63	62	77	65	64.0	80	nne.	2-0	6-0	29.85	29.74	0.00	
10.....	29.88	63	62	79	62	64.0	81	se.	2	1-3	29.97	29.78	0.00	
11.....	29.97	64	56.5	77	62	63.5	82	w-n.	2	7-0	29.97	29.83	0.02	
12.....	29.99	56	53.5	74	62	51.7	57	nw-n.	2	1-0	30.02	29.93	0.00	
13.....	29.96	58	56	75	55	53.0	66	n-s.	2-0	1-0	30.03	29.90	0.00	
14.....	29.96	59	57	75	57	57.7	75	w.	1-0	2-0	30.02	29.90	0.00	
15.....	29.99	68	61.5	77	58	58.7	71	s-n.	1	5-0	30.02	29.91	0.00	
16.....	30.05	67	58	72	65	56.3	56	nne.	3-6	4-9	30.06	29.97	0.00	
17.....	30.05	70	62.5	74	66	54.0	58	ne.	5	4-1	30.09	29.99	0.00	
18.....	30.15	72	67	79	66	61.5	67	ne.	4	1	30.16	30.03	0.03	
19.....	30.14	64	62	79	71	63.3	70	ne.	3-0	3-1	30.22	30.08	0.00	
20.....	30.09	65	61.5	79	62	61.0	72	w-n.	2-0	4	30.18	30.06	0.00	
21.....	29.99	64	62	80	60	61.0	69	ne-sw.	2-0	4-3	30.12	29.99	0.00	
22.....	30.00	65	63.5	78	62	60.7	70	sw.	1	1-10	30.06	29.94	0.00	
23.....	30.09	71	65	82	64	58.3	61	s-se-ne.	1	5-2	30.12	30.02	0.00	
24.....	30.07	64	61.5	82	66	62.3	67	nne.	2	2-7-0	30.16	30.02	0.00	
25.....	30.01	65	63	80	63	63.5	78	sw-ne.	2-0	1-8	30.09	29.99	0.01	
26.....	30.00	71	64.5	80	64	62.3	70	ne.	3	3	30.06	29.95	0.00	
27.....	30.02	71	63.5	79	71	60.7	62	ne.	3	3	30.07	29.97	0.00	
28.....	30.01	68	62.5	80	67	60.3	64	ne.	3	2-5	30.07	29.97	0.01	
Sums..	1.14
Means.	29.99	66.2	61.8	77.3	63.9	60.2	70.0	.....	2.3	3.7	30.050	29.938	.....
Departure..	+ .04	-2.3	-5.0	-1.2	-4.86

Mean temperature for February, 1900 (6+2+9) ÷ 3 = 70.5°; normal is 70.6°. Mean pressure for January (9+3) ÷ 2 is 29.991; normal is 29.949.

* This pressure is as recorded at 1 p. m., Greenwich time. † These temperatures are observed at 6 a. m., local, or 7:29 p. m., Greenwich time. ‡ These values are the means of (6+9+2+9) ÷ 4. § Beaufort scale.

KITE OBSERVATIONS AT BAYONNE, N. J.

By the Bayonne Kite Club.

The secretary of the Bayonne kite corps, under date of February 19, submits the accompanying table showing the thermometric records and other data accumulated by the corps during the past six months, in continuation of the record published in the MONTHLY WEATHER REVIEW for June, 1899, p. 251. The columns 12 to 15 here given were compiled by the Records Division. The altitudes given in the 5th column show a decided gain in the heights from which records are obtained. In ascension No. 118 the record for 1,000 feet is given hourly beside the record for 2,000 feet made by a second thermometer. This was accomplished by means of the kite line transit carrier car. A record was also kept of the electrical phenomena on the kite wire.

The secretary of the club says: